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(54) Sheets or Drawings Clamping Device

(57) A clamping device for supporting drawings or sheets comprises first and second elongate gripping elements (2, 3) connected by a hinge for pivoting about an axis (head 4) extending along their lengths so that a drawing to be supported may be held between clamping surfaces located at or

adjacent to opposed longitudinally extending edge portions (6, 10) of the gripping elements. One gripping element (3) is provided with a projecting portion (11) which extends on the opposite side of the hinge means (4, 8, 9) from the longitudinally extending edge portions and means, (a screw (14)) is arranged on the projecting portion (11) to act on a part (5) of the second gripping element to clamp the clamping surfaces together.

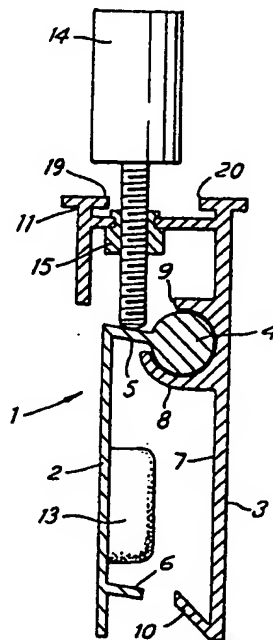
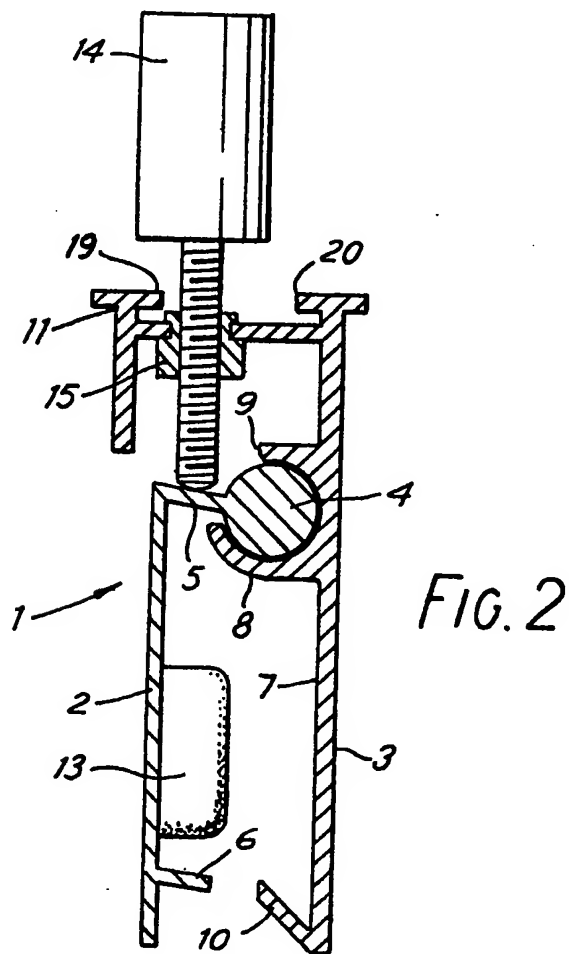
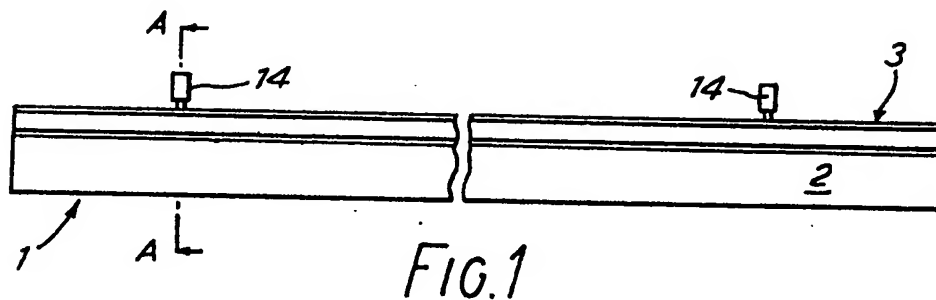


FIG. 2

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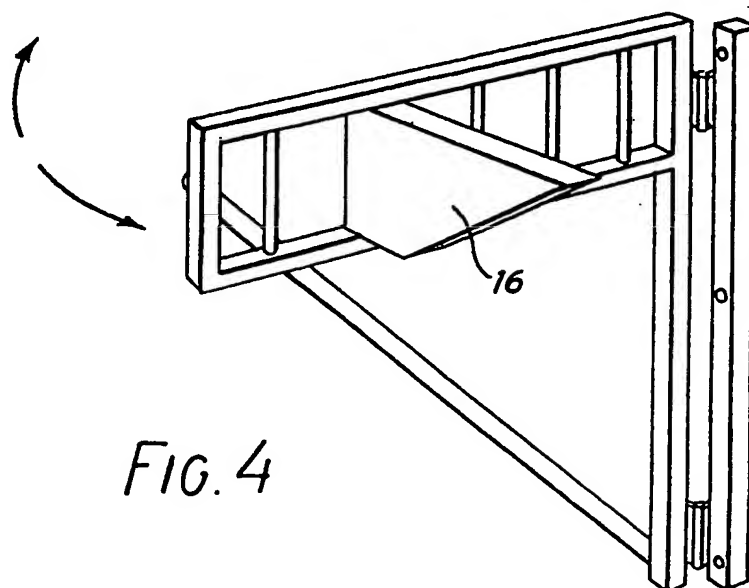
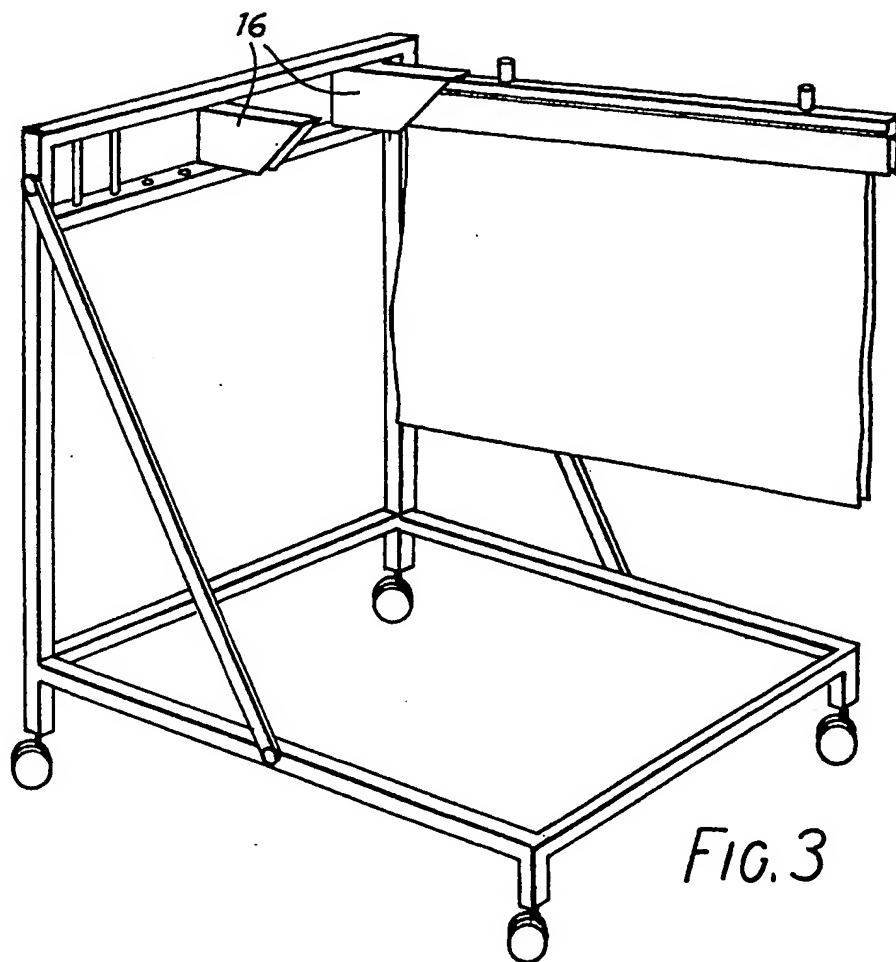
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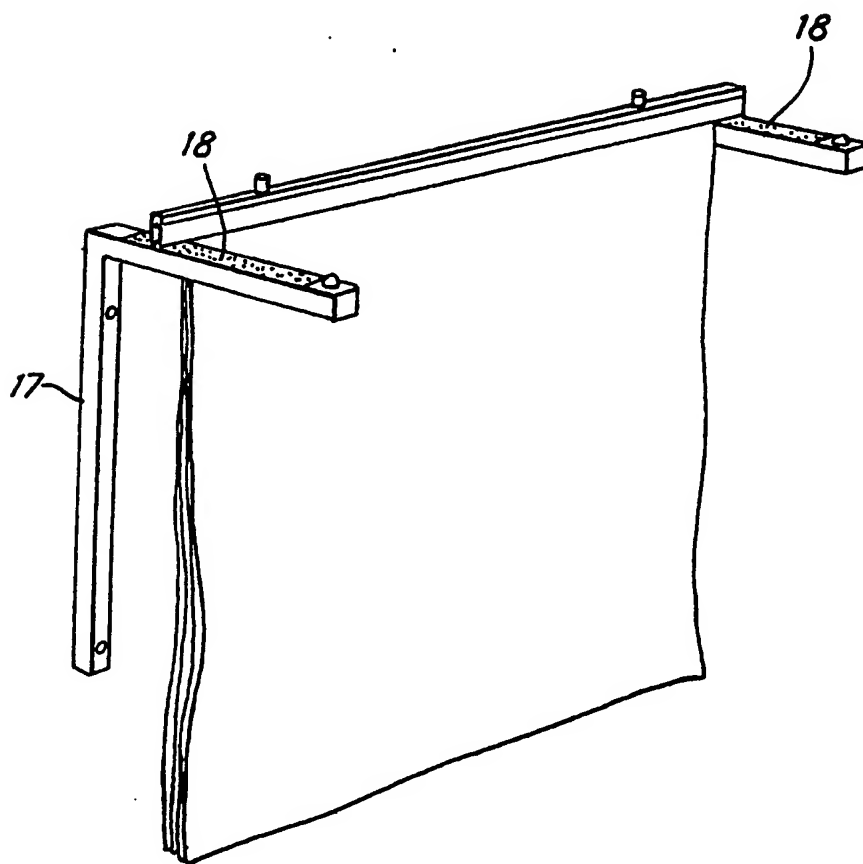


FIG. 5

SPECIFICATION

Clamping Device

This invention relates to clamping devices for supporting drawings or similar articles in sheet form.

In industries such as, for example the building and engineering industries where large numbers of plans and designs drawings are used, it is desirable to file the drawings in a readily accessible manner. Traditionally, large drawings have been stored in drawers, but this form of storage is inconvenient since the drawings cannot easily be removed. There have been proposals for storing drawings by clamping the drawings along their edges and suspending them vertically, but hitherto the only available clamping devices have been of a comparatively complex construction and consequently have been difficult to produce economically.

We have now developed a new design of device for supporting drawings which is not only relatively simple to produce, but which also can be made in form which is aesthetically pleasing.

According to the present invention there is provided a clamping device for supporting drawings or like articles in sheet form, the device comprising first and second elongate gripping elements, hinge means for connecting the elements together so they may pivot relative to one another about an axis extending along the length of said element so that an article to be supported may be held between clamping surfaces located at or adjacent to opposed longitudinally extending edge portions of the gripping elements, one of the gripping elements being provided with a projecting portion extending on the opposite side of the hinge means from the said longitudinally extending edge portion thereof, and means acting between said projecting portion and part of the second gripping element for clamping the clamping surfaces together.

Biasing means, for example a leaf spring is preferably provided to maintain the opposed longitudinally extending edges and the clamping surfaces in spaced apart relationship in opposition to the clamping means in order to facilitate insertion between the clamping surfaces of articles to be supported.

Although the clamping surfaces may comprise portions of the longitudinally extending edges themselves, preferably the clamping surfaces are provided by raised studs which are preferably formed of a resilient material such as, for example rubber or a resilient plastics material.

Preferably both the first and second gripping element comprise lengths of extruded material, in which case the hinge means can conveniently be formed by complementary parts of the two extrusions. Thus, for example, one of the gripping elements may be provided with a cylindrical bead along one edge which is accommodated in a corresponding part-cylindrical groove in the other gripping element. An advantage of this

construction is that the device may be readily assembled simply by inserting the cylindrical bead into the groove and sliding the elements longitudinally relative to one another.

The means acting between the laterally projecting portion of the first gripping element and part of the second gripping element preferably comprises a screw mounted in the laterally projecting portion and arranged to bear on the second gripping element. The screw may, for example, be mounted in a corresponding screw-threaded hole in the laterally projecting portion of the first gripping element, but preferably a separate screw-threaded bush, for example a collar nut is provided, for example in a recess in the first gripping element and the screw is engaged with this bush.

One embodiment of clamping device according to the present invention will now be described by way of example with particular reference to the accompanying drawings, in which

Figure 1 is a side elevation of the clamping device,

Figure 2 is a cross sectional view on an enlarged scale of the device of Fig. 1, taken on line A—A,

Figure 3 is a perspective view of mounting arrangement for a series of clamping devices, and Figures 4 and 5 are perspective views of alternative forms of mounting arrangement.

Referring to the drawings, clamping device 1 consists of a pair of gripping elements 2 and 3 formed from lengths of extruded material. Element 2 is generally L-shaped in transverse cross-section and is provided with a longitudinally extending cylindrical bead 4 at one extremity of web portion 5. Adjacent the free end of the remaining web portion is formed a lateral flange 6, the purpose of which will be explained below.

Element 3 is of more complex cross-sectional shape than element 2 and generally consists of a side-wall portion 7 having a pair of integrally formed curved lips 8 and 9 on one side thereof which define a generally C-section channel within which the cylindrical bead 4 of element 2 is located. Since the bead 4 can rotate about its longitudinal axis within the channel formed by lips 8 and 9, the combination of parts 4, 8 and 9 act as a hinge allowing the elements 2 and 3 to pivot relative to one another.

At the free edge of side-wall portion 7 is provided an upwardly directed flange 10 arranged to cooperate with flange 6 of element 2 to provide a pair of longitudinally extending edges between which a sheet to be held by the clamping device may be inserted. A series of rectangular rubber studs 13 are secured on the inner surface of element 2 at spaced intervals along its length.

On the far side of lips 8 and 9 from flange 10, element 3 is provided with a laterally projecting portion 11 formed from a series of flanges and connecting webs. Of these flanges, flange 12 is pierced by a pair of holes through which pass clamping screws 14 which engage with correspondingly screw-threaded collar nuts 15.

As can be seen in Fig. 1, the free ends of screws 14 lie adjacent to web portion 5 of element 2.

5 A generally U-shaped leaf spring (not shown) is located in the channel between gripping elements 2 and 3 and is arranged to bias the flanges 6 and 10 away from one another in order to facilitate insertion of sheets therebetween in use of the clamping device.

10 In use of the clamping device illustrated, the screws 14 are unscrewed partially to enable the gripping elements 2 and 3 to pivot apart enabling articles to be supported, for example a sheet or sheets to be inserted in the space between flanges 6 and 10. After insertion of the sheets the screws are tightened so that they come to bear upon web portion 5 thus causing element 2 to turn anti-clockwise relative to element 3 (as seen in Fig. 2) hence forcing flanges 6 and 10 together and clamping the sheets between studs 13 and the opposed inner surface of element 3. Flanges 6 and 10 also assist in gripping the articles to be supported.

25 Device 1 may be formed from any readily extrudible material, for example aluminum and assembly of the device is particularly straightforward since all that is required for the two elements 2 and 3 to be slid relative to one another so as to locate bead 4 in the aforementioned C-section groove. Although only 30 two clamping screws 14 are shown in the device illustrated, it is of course possible to utilise more than two screws.

Any convenient means may be employed to support the clamping devices according to the invention, but one particularly effective one is to support the devices at one end in frames such as those shown in Figs. 3 and 4. Thus Fig. 3 illustrates a mobile frame within which a series of devices may be suspended using removal 40 brackets 16 into which the ends of the clamping devices may be slid. Similarly Fig. 4 illustrates a wall-mounted frame.

Alternatively as illustrated in Fig. 5 clamping devices according to the invention may be supported at each end on L-shaped brackets 17 which are preferably provided with textured rubber strips 18 on their upper surfaces.

50 Since the hinge and clamping screws are partly concealed by the flanges and webs provided by projecting portion 11, the clamping device illustrated has a particularly neat appearance. Additionally, parts of the projecting portion 11 may perform useful functions other than acting as a mounting for screws 14. Thus, data relating to the articles held in the clamping device may be written or otherwise displayed thereon, for example by inserting a card or label in the recess under the inwardly turned rims 19 and 20 formed on the upper edge of the projecting portion.

60 It can be seen that devices according to the

invention can be constructed from a very small number of different parts. Thus in the embodiment specifically described only two different extrusions are required and the total number of different parts (i.e. the extrusions plus the screws nuts, leaf spring and studs) in six.

Claims

1. A clamping device for supporting drawings or like articles in sheet form, the device comprising first and second elongated gripping elements, hinge means for connecting the elements together so they may pivot relative to one another about an axis extending along the length of said elements so that an article to be supported may be held between clamping surfaces located at or adjacent to opposed longitudinally extending edge portions of the gripping elements, one of the gripping elements being provided with a projecting portion 70 extending on the opposite side of the hinge means from the said longitudinally extending edge portion thereof, and means acting between said projecting portion and part of the second gripping element for clamping the clamping surfaces together.

85 2. A clamping device as claimed in Claim 1 wherein the first and second gripping elements comprise lengths of extruded material.

90 3. A clamping device as claimed in Claim 2 wherein the hinge means is formed by complementary parts of the two extrusions.

95 4. A clamping device as claimed in Claim 3 wherein one of the gripping elements is provided with a cylindrical bead along one edge which is accommodated in a corresponding part-cylindrical groove in the other gripping element.

100 5. A clamping device according to any preceding claim including biasing means for maintaining the opposed longitudinally extending edge portions and the clamping surfaces in spaced apart relationship in opposition to the clamping means.

105 6. A clamping device according to any preceding claim in which the gripping elements are provided with raised studs formed of resilient material which provide said clamping surfaces.

110 7. A clamping device according to any preceding claim in which said clamping means comprises a screw mounted in the laterally projecting portion of the first gripping element and arranged to bear on the second gripping element.

8. A clamping device according to Claim 1 and substantially as hereinbefore described.

115 9. A method of supporting drawings or like articles in sheet form which comprises clamping said articles along one side edge by means of a clamping device according to any preceding claim and suspending the articles from the clamping device.